

METHOD AND APPARATUS FOR PREDICTING THE ONSET OF SEIZURES BASED ON FEATURES DERIVED FROM SIGNALS INDICATIVE OF BRAIN ACTIVITY

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This invention is a method, and system for predicting the onset of a seizure prior to electrograph onset in an individual. During an "off-line" mode, signals representing brain activity of an individual (either stored or real time) are collected, and features are extracted from those signals. A subset of features, which comprise a feature vector, are selected by a predetermined process to most efficiently predict (and detect) a seizure in that individual. An intelligent prediction subsystem is also trained "off-line" based on the feature vector derived from those signals. During "on-line" operation, features are continuously extracted from real time brain activity signals to form a feature vector, and the feature vector is continuously analyzed with the intelligent prediction subsystem to predict seizure onset in a patient. The system, and method are preferably implemented in an implanted device (102) that is capable of warning externally an individual of the probability of a seizure, and/or automatically taking preventative actions to abort the seizure. In addition, methods are provided for applying intervention measures to an animal to abort or modulate a seizure by adjusting the modality of an intervention measure; and/or parameters of an intervention measure based upon a probability measure indicative of a likelihood of seizure occurrence; and/or a predicted time to seizure onset.



